

AUSTRALIAN PLANT DISEASE RECORDER

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For confidential circulation to plant pathologists in Australia - PLEASE
DO NOT ABSTRACT



FIELD AND FODDER CROPSEFFECT OF BLUE-MOULD ON GROWTH AND TRANSPIRATION OF TOBACCO LEAVES:

An analysis of the effect of blue-mould (Peronospora tabacina Adam) on growth and transpiration of its host plant has been recently completed.

The disease responses were studied under three temperature regimes:-

Mean Day Temp. °F	Mean Night Temp. °F
a. 69	58
b. 78	65
c. 88	70

In the case of both growth and transpiration the response to infection was clearly visible after 72 hours from inoculation. Growth in terms of increase in leaf area was almost completely inhibited at all temperatures. The ratio of transpiration from diseased to transpiration from healthy plants was 1.3, 1.5 and 1.8 for the three temperature regimes a, b and c. Analysis of this response into day and night levels showed that the difference in daily transpiration could be almost completely accounted for by greater transpiration from diseased leaves at night (4.30 p.m. to 8.30 a.m.).

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EFFECT OF BLUE-MOULD ON GROWTH AND TRANSPARATION OF TOBACCO LEAVES

An analysis of the effect of blue-mould (*Phoma glaucae*) on growth and transpiration of the host plant has been recently completed.

The disease responses were studied under three temperature regimes:

Mean Day Temp. °F	Mean Night Temp. °F
63	52
75	65
88	75

In the case of both growth and transpiration the responses to infection were closely similar after 72 hours from inoculation. Growth in terms of leaves in leaf area was almost completely inhibited at all temperatures. The rate of transpiration from diseased or senescing leaves was decidedly higher than 1.5, 1.7 and 1.8 for the three temperature regimes at 3 and 4. Analysis of the response for day and night levels showed that the difference in day transpiration could be almost completely accounted for by the greater transpiration from diseased leaves at night (4.30 g/m. in 8.30 a.m.).

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ARMILLARIA ROOT-ROT OF HOPS:

The first case of Armillaria mellea on hops in Tasmania was recorded in a hop garden at New Norfolk this season. The affected garden is three years old and was planted on alluvial soil, which had not been cropped for many years. There are two infected areas, each centred around large stumps of Eucalyptus viminalis. The trees had been cut down immediately before planting out the area, and no effort was made to remove the stumps and root systems.

A large proportion of hills in a circle, with a radius of about eighteen feet, around each stump is affected, and over one hundred hills will have to be removed.

The symptoms on the above ground portion of the hops comprise wilting and gradual death of the vines, which dry out and shrink. The "strap" exhibit conspicuous white fan shaped mycelium beneath the bark. Rhizomorphs are embedded in the bark, and appear as black longitudinal streaks. Free rhizomorphs were not observed.

G.C. WADE

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VEGETABLESHOT WATER TREATMENT OF TURNIP SEED:

Following a report of poor germination of hot water treated turnip-seed, a series of germination tests of treated seed were carried out. The recommended treatment is to hold the seed at 122° F for 30 minutes and allow to dry thoroughly before sowing. In the reported case, seed considered to be so treated and sown with superphosphate failed to germinate.

For the germination tests, two varieties of turnip were used. Imperial Green Globe and Mammoth Purple Top. Seed was treated at various temperatures and then subjected to various drying times with or without contact with superphosphate. 2 oz. lots of seed were treated and, to determine the effect of each treatment, three germination plates were used. Treatments and numbers of ungerminated seeds (from an initial number of 100 seed per plate) are tabulated. A and B were carried out on different lines of seed and at different times.

<u>Treatment</u>		<u>Mammoth Purple Top</u>	<u>Imperial Green Globe</u>
1.	Untreated A	1 - 1 - 1	3 - 0 - 0
	Untreated B	10 - 9 - 3	
2.	Held at 122° F for 30 minutes, spread and dried overnight A	12 - 12 - 6	6 - 3 - 1
	" " " " B	8 - 12 - 15	
3.	Held at 122° F, placed in paper bag overnight after 1 hour's drying spread out A	11 - 11 - 6	3 - 5 - 10
4.	Held at 126° F, spread and dried overnight A	23 - 15 - 20	6 - 6 - 4
5.	Held at 130° F, spread and dried overnight A	63 - 54 - 66	13 - 14 24
6.	Held at 122° F spread and dried 1 hour, placed in superphosphate for 1 hour A	36 - 37 - 24	8 - 13 - 5

<u>Treatment</u>		<u>Mammoth Purple Top</u>	<u>Imperial Green Globe</u>
7.	Held at 122°F, spread and dried 1 hour, placed in superphosphate for 12 hours	A 74 - 78 - 86	92 91 - 99
8.	Held at 122°F, spread and dried overnight, placed in superphosphate for 12 hours	A 14 - 19 - 13	47 - 29 - 60
	" " " " "	B 10 - 11 - 13	
9.	Untreated, placed in superphosphate for 12 hours	B 5 - 10 - 4	

These tests indicate that accurate temperature control is advisable, although Imperial Green Globe can withstand temperatures considerably higher than recommended.

Superphosphate in contact with the seed does not itself cause reduced germination, but does if the seed is not thoroughly dry before mixing. It would appear that this latter effect was the cause of the damage in the case reported.

P. SAMPSON

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FRUITDALAPON INJURY AND APPLE FRUIT RING SPOT:

During the 1957-1958 apple season, dalapon was used in some orchards to control weed growth round tree trunks. There were one or two cases where slightly excessive doses of dalapon were used and these resulted in a fruit injury, one symptom of which was very like the concentric ring symptom in apple ring spot.

The variety affected was Tasman's Pride and there were two main symptoms.

1. The colour of the fruit was reduced from a rosy red to quite an orange shade.
2. Concentric circles of brown discoloration about 1 mm. wide developed into "targets" up to 1/2 an inch in diameter.

These at first suggested the concentric ring symptoms of apple ring spot. However, the brown lines following dalapon injury are coarser than those of apple ring spot, and are about twice as wide. Also the outline of the circles in dalapon injury is slightly wavy, where in apple ring spot the lines appear as smooth curves. Finally, with dalapon injury, the brown lines are accompanied by a slight depression in the skin, while in apple ring spot the surface is smooth.

Dalapon injury did not cause any russetting of the fruit. The absence of russet also helps to prevent confusion on the diagnosis of the cause of these two very similar sets of symptoms.

J.R. WARD

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RIPE ROTS OF GRAPES IN N.S.W. IN 1959:

Several types of ripe rot were much more prevalent than usual during the grape harvest in N.S.W. in 1959. Rain in February and March, though not sufficient to cause very high losses, ensured their development.

White Rot (Coniothyrium diplodiella) caused infection ranging from very slight to 50% of the crop. It was particularly prevalent in the wine varieties Chasselas and Traminer at Rooty Hill and in Hunter River vineyards in Riesling, Black Shiraz, Pinot and Montils. It was also recorded for the first time in the Murrumbidgee Irrigation Areas in Valensi.

Bitter Rot (Melanconium fuligineum) was most prevalent in late hanging Cornichons at Griffith, where losses of up to 40% of the crop were noted. It was also present, with white rot, in wine varieties in Hunter River vineyards.

Phomopsis viticola and Physalospora obtusa caused minor infections in coastal vineyards, evidently invading the berries by way of fruit pedicels.

Grey Mould (Botrytis cinerea) did not develop in Hunter River and Metropolitan vineyards, possibly because of high temperatures during harvest, but caused some slight infection of Grenache, Riesling and Pedro at Griffith.

L.R. FRASER

Department of Agriculture,

SYDNEY

BUD-UNION DISORDERS OF CITRUS ON TRIFOLIATA STOCK:

A bud-union disorder of nucellar Eureka lemon on trifoliata stock was reported in A.P.D.R.9: 4: 39 and its probable identity noted with the condition described in Eureka lemon on Troyer citrange and trifoliata by Weathers et al., and more recently by Mouriya, Shannon and Frolich (California Citrograph, September, 1958). This same type of disorder has now been noted in the following stockscion combinations in N.S.W.: Palestine citron on trifoliata, bitter Seville orange on trifoliata (including 3 year old nucellar Seville orange on trifoliata which were glasshouse grown) and nucellar Eureka lemons on Morton and Carrizo citrange. The development of a gum blockage at the bud-union is followed by deterioration and death within a few months of trees of Seville orange on trifoliata and of lemons on citrange stocks, but in lemons and citron on trifoliata stock the deterioration takes place over a period of several years. Trees between the age of 3 and 8 years are affected.

L.R. FRASER

Department of Agriculture,

SYDNEY.

ORNAMENTALSVERTICILLIUM WILT OF ROSES:

A number of cases of wilt, caused by *Verticillium dahliae*, have occurred on roses in Hobart gardens this season.

The symptoms consist of chlorosis of the leaves, which usually develop epinasty. Later the leaves die and fall, and then the affected branches gradually die back. The bark becomes pale green to yellow, and frequently develops longitudinal purple stripes. Discolouration of the vascular tissue is not obvious and in general symptomatology the disease resembles rose wilt virus. Unless cultures were made to demonstrate the presence of the fungus, it could easily be confused with that disease.

It may be a coincidence, but most of the infected plants had been obtained from one well known Australian nursery. The history of some of the gardens in which the disease occurred made it unlikely that the fungus had been originally introduced on some other host, such as tomatoes or potatoes.

G.C. WADE

Department of Agriculture,

HOBART.

VERTICILLIUM WILT OF ROSES.

A number of cases of wilt, caused by *Verticillium dahliae*, have occurred in roses in Hobart gardens this season.

The symptoms consist of chlorosis of the leaves, which usually develop symmetrically. First the leaves die and fall, and then the affected branches gradually die back. The bark becomes pale green to yellow, and frequently develops longitudinal purple stripes. Discoloration of the vascular tissue is not obvious and in general symptomatology the disease resembles the wilt virus. Unless cultures were made to demonstrate the presence of the fungus, it could easily be confused with that disease.

It may be a coincidence, but most of the infected plants had been imported from the well known Australian nursery. The history of some of the garden in which the disease occurred made it unlikely that the fungus had been originally introduced on some other host, such as tobacco or cotton.

G.C. WADE

Department of Agriculture,

HOBART.

MISCELLANEOUSREQUEST FOR TOBACCO RINGSPOT VIRUS:

Dr. N.C. Crowley is anxious to obtain specimens of any plants infected with tobacco ringspot virus. He would be most grateful if dessicated material together with details of the occurrence could be sent to him at the Waite Institute, Adelaide.

REQUEST FOR ALTERNARIA SPP.

Dr. C.J. Shepherd of the C.S.I.R.O. Division of Plant Industry is proposing to study the species of Alternaria present in Australia. He would be very grateful for any cultures of species of Alternaria or fungi suspected of belonging to this genus.

MISCELLANEOUSREQUEST FOR TOBACCO RINGSPOT VIRUS:

Dr. H.C. Crowley is anxious to obtain specimens of any plants infected with tobacco ringspot virus. He would be most grateful if designated materials together with details of the occurrence could be sent to him at the Walter Institute, Adelaide.

REQUEST FOR ALTERNARIA SPP.

Dr. C.J. Shepherd of the C.S.I.R.O. Division of Plant Industry is preparing to study the species of Alternaria present in Australia. He would be very grateful for any cultures of species of Alternaria or fungi suspected of belonging to this genus.